

1 WHAT IS CLAIMED IS:

2 1. A method of processing feathers comprising the step of  
3 reducing said feathers in a reducing apparatus selected from the  
4 group consisting of at least one refiner, at least one pulper, and  
5 combinations thereof.

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7 2. The method of claim 1 wherein said reducing apparatus  
8 comprises a disc mill.

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10 3. The method of claim 1 wherein said reducing apparatus  
11 comprises a high shear pulper.

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13 4. The method of claim 1 further comprising the step of adding a  
14 cleaning agent to said feathers.

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16 5. The method of claim 4 wherein said cleaning agent is added to  
17 said feathers such that said cleaning agent is present with said  
18 feathers in said reducing apparatus.

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1 6. The method of claim 4 wherein at least a portion of said  
2 cleaning agent is added to said feathers after said step of  
3 reducing.

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5 7. The method of claim 4 wherein said cleaning agent is selected  
6 from the group consisting of hydrogen peroxide, detergent, surface  
7 acting surfactants, bleach and combinations thereof.

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9 8. The method of claim 4 wherein said cleaning agent comprises  
10 hydrogen peroxide.

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12 9. The method of claim 4 wherein said cleaning agent comprises a  
13 detergent.

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15 10. The method of claim 1 wherein a reduced feather material is  
16 produced in said step of reducing and said method further  
17 comprising the step of separating said reduced feather material  
18 into a fiber material and a quill material.

1 11. The method of claim 10 wherein said fiber material and said  
2 quill material are separated in said step of separating using at  
3 least one hydraulic screen.  
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5 12. The method of claim 10 wherein said fiber material and said  
6 quill material are separated in said step of separating using at  
7 least one centrifugal cleaner.  
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9 13. The method of claim 10 further comprising the step of drying  
10 said quill material in a high agitation dryer.  
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12 14. The method of claim 1 wherein a reduced feather material is  
13 produced in said step of reducing and wherein said method further  
14 comprises the step of adding a bonding agent to at least a portion  
15 of said reduced feather material.  
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17 15. The method of claim 14 further comprising the step of forming  
18 a product from said reduced feather material having said bonding  
19 agent added thereto.  
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1 16. The method of claim 1 wherein a reduced feather material is  
2 produced in said step of reducing and wherein said method further  
3 comprises the step of forming a sheet product from said reduced  
4 feather material.

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6 17. The method of claim 1 wherein a reduced feather material is  
7 produced in said step of reducing and wherein said method further  
8 comprises the step of forming a molded product from said reduced  
9 feather material.

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11 18. The method of claim 1 wherein a reduced feather material is  
12 produced in said step of reducing and wherein said method further  
13 comprises the step of adding a reduced paper material to at least  
14 a portion of said reduced feather material to form a combined  
15 reduced material.

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17 19. The method of claim 18 further comprising the step of forming  
18 a product from said combined reduced material.

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20 20. The method of claim 19 wherein said product is formed in said  
21 step of forming using a sheeting process.

1 21. The method of claim 19 wherein said product is formed in said  
2 step of forming using a molding process.

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4 22. The method of claim 21 wherein said molding process uses a  
5 vacuum mold.

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7 23. The method of claim 18 further comprising the step of adding  
8 a bonding agent to at least one of said reduced feather material,  
9 said reduced paper material, and said combined reduced material.

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11 24. A reduced feather product produced by the method of claim 2.

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13 25. A reduced feather product produced by the method of claim 3.

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15 26. A reduced feather product produced by the method of claim 8.

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17 27. A reduced feather product produced by the method of claim 9.

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19 28. A sheet product produced by the method of claim 16.

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21 29. A molded product produced by the method of claim 17.

1 30. A sheet product produced by the method of claim 20.

3 31. A molded product produced by the method of claim 21.

5 32. A molded product produced by the method of claim 22.

7 33. A method of processing feathers comprising the step of  
8 reducing said feathers in the presence of a cleaning agent selected  
9 from the group consisting of hydrogen peroxide, detergent, surface  
10 acting surfactants, bleach, and combinations thereof.

12 34. The method of claim 33 wherein said cleaning agent comprises  
13 said hydrogen peroxide.

15 35. The method of claim 33 wherein said cleaning agent comprises  
16 said detergent.

18 36. A method comprising the steps of:

19 (a) adding a reduced paper material to a reduced feather  
20 material to form a combined reduced material and

21 (b) forming a product from said combined reduced material.

37. The method of claim 36 wherein said product is formed in said step of forming using a sheeting process.

38. The method of claim 36 wherein said product is formed in said step of forming using a molding process.

39. The method of claim 38 wherein said molding process uses a vacuum mold.

40. The method of claim 36 further comprising the step of adding a bonding agent to at least one of said reduced feather material, said reduced paper material, and said combined reduced material.

41. A product formed by the method of claim 36.

42. A sheet product formed by the method of claim 37.

43. A molded product formed by the method of claim 38.

44. A molded product formed by the method of claim 39.

1 45. A product formed by the method of claim 40.

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45. A product formed by the method of claim 40.